

# Analysis of the Factors Affecting Development of E-Banking Services in Iran

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## Abstract

The present study is to investigate factors affecting the development of e-banking services. In order to achieve the objective stated above, the development of a theoretical framework to study the hypotheses was investigated. For this purpose, eight hypotheses were suggested. Toward solving problems and answering research questions, the following steps were taken including literature survey, mining structures, variables and factors associated with e-banking features. The final questionnaire was prepared and distributed among experts. Field studies and collect primary data were regarded as the data for analysis. The results showed that there is a significant relationship between the financial instruments of economic infrastructure, technical infrastructure, infrastructure management and policy, social and cultural infrastructure, legal infrastructure and infrastructure Ansanyu electronic banking services.

## Literature review

Nowadays, banks use different channels for providing e-banking services to their customers, the most important of them include managed networks, personal computers, personal processors, kiosks, and mobile telephones and ATM machines.

In order to develop e-commerce in the country, entering into global markets and membership in organizations such as the WTO, an efficient banking system is considered as a fundamental requirement. Thus, using information technology to create and develop e-banking in banking system of the country is important.

Creation and development of e-banking requires a certain appropriate economic and social infrastructure including appropriate connectivity and telecommunication network, security of information exchange, appropriate legal infrastructures and cultural preparation of society and economic insti-

tutes for accepting and using e-banking services.

Therefore, for appropriate development and expansion of e-banking and e-commerce in the country, one should create appropriate telecommunication infrastructure, security in information exchange, establishment of appropriate legal rules, cultural foundation and familiarize people with economic institutes with e-commerce and e-payment advantages in order to facilitate the formation of e-government and communication with BOLERO system, which is e-commerce global commerce which is done in order to facilitate the operation of e-transference of information and commercial documents between different organizations related to goods commerce and services. This system is responsible for secure transference of commercial information between users and guarantee for transference of all commercial documents

In 2000, Sayed Javad Rezaiee in Imam Sadegh University, has analyzed the barriers to expand e-commerce in Iran. The findings of the research showed that the most important barrier with regard to rules and principles is unclear legal status of e-commerce laws and regulations, and from the economic aspect, financial weakness in getting the necessary budget in the field of information technology and e-commerce.

In 2003, Shahriar Azizi in Tarbit Modarres University, analyzed identification of barriers to apply e-commerce in Iran Khodro company and representing implementation strategies to fix them. Research findings show that lack of required financial resources in Iran Khodro Company does not prevent applying e-commerce and other hypotheses are confirmed.

Among studies performed in other countries except Iran, we can refer to the following cases:

In 2001, Glasnz and Klyngbyl in UNCTAD, studied the effective factors in the financial development of electronics and research findings showed the effectiveness of wireless communication, security, infrastructure related to Electronics transactions,

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Information and regulations, and the effective role of the World Bank in financial electronic development of in the world has been pointed out.

In 2003, Drio has analyzed the barriers to applying e-commerce and states them in nine cases including very high risk, inability to use the Internet for earning, threatening current methods of doing business, tolerance of the people and culture of the organization, lack of interest in financial management, lack of financial resources, No technical skills required, and inadequate knowledge about technology and e-business

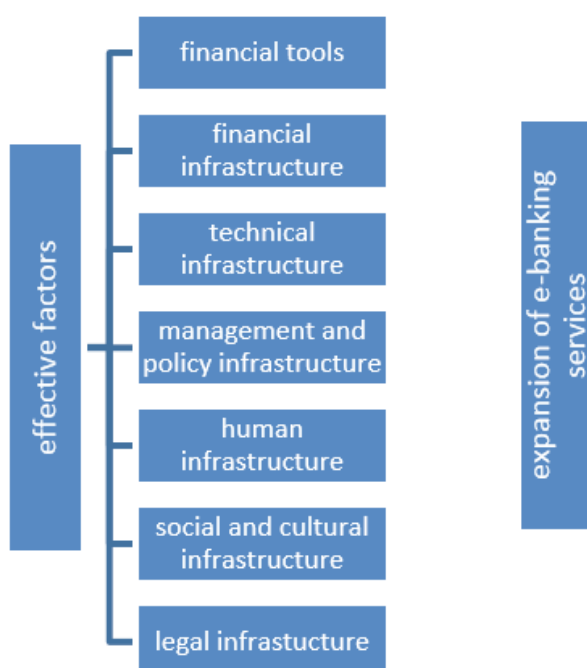
In 2000, Mukti studied barriers for applying internet to do commercial affairs in Malaysia and referred to barriers such as security, lack of expert personnel, lack of computer, hackers' disturbance.

In 1998, Nat *et al* examined the current problems regarding application of e-commerce and states his findings in six cases:

1. Security
2. Costs: including the cost of connection, hardware, software, and launch
3. Legal problems
4. Training and maintenance
5. Lack of expert employees
6. Unreliability and lack of information

According to experts and managers, the factors affecting the development of e-banking services in Iran, includes financial instruments, economic infrastructure, technical infrastructure, infrastructure management and policy infrastructure, human, social and cultural infrastructure.

With regard to analysis of credible international models the primary framework of model is as follows:



**Figure 1: primary framework of research**

## Research hypotheses

1) Financial instruments affect the development of e-banking services.

2) Economic infrastructure has an impact on the development of e-banking services.

3) Technical infrastructure has an impact on the development of e-banking services.

4) Management and policy infrastructure has an impact on the development of e-banking services.

5) Human infrastructure has an impact on the development of e-banking services.

6) Social and cultural infrastructure has an impact on the development of e-banking services.

7) Legal infrastructure has an impact on the development of e-banking services.

8) Factors influencing the development of e-banking services in Iran are not of equal importance.

## Research Methodology

The present research is practical and with regard to data collection is descriptive survey. The sample population includes all managers, superior professionals and experts in information technology and activists of financial market in Iran who are living in Tehran and are 200 people. The sampling method in this research is simple random and the questionnaires were randomly distributed among the selected participants. In order to determine the sample population Kerjesi and Morgan table was used. Finally, a number of 132 people were taken into account. In this research, in order to study the effective factors on development of e-banking services in Iran a questionnaire was used. The research questionnaire included 20 questions. The questionnaire was used to measure all questions in Likert scale (one to five). One of the most common scales for measuring attitudes is Likert scale. This scale is composed of regular series that are made in a particular order. This statement represents a particular series of measurable phenomena as a statement that has appropriate intervals with regard to measurement value. In order to make statement normally favorable and unfavorable, phenomenon measured to an equal number. The respondent shows his agreement with each of statements in a graded scale which is usually from one to five (or seven) . For the reliability of the tool in this research, Cronbach Alpha coefficient was used. The value of Alpha Cronbach in this research equals to 0.78 that shows the high reliability of the questionnaire. In order to determine the validity of the questionnaire confirmative factor analysis was used to analyze data.

## Results

Findings of descriptive and orthographic statistics were shown in table 1

### *Summary of factor analysis questionnaire*

The following table shows the results of factor analysis of research based on measures and dimensions.

**Table 1: Findings of descriptive statistics**

Gender	Frequency	Percentage
Female	92	69.7%
Male	40	30.3%
Major	Frequency	Percentage
Engineering and Technology	52	39.4%
Sciences	17	12.9%
Humanities	62	47%
Job history	Frequency	Percentage
1-15 years	105	0.7905%
16 years and older	24	18.2%
Educations	Frequency	Percentage
Diploma and lower	33	25%
Associate degree	4	3%
Bachelor degree	59	44.7%
Master degree and above	35	26.5%
Unanswered	1	0.8%
Age	Frequency	Percentage
20-30 years	61	46.02%
31 to 40 years	56	42.04%
Higher than 40	4	10.6%
Total	132	100%

### *Analysis of research hypotheses*

Based on the results obtained in this section research hypotheses can be analyzed and study them regarding conforming or not confirming. To confirm or reject research hypotheses, the binomial test was used.

#### **Main hypothesis**

The initial hypothesis (H0): Financial instruments do not affect the development of e-banking services.

Research hypothesis (H1): Financial instruments affect the development of e-banking services.

Since the significance level is lower than 0.05 and also the estimated test ratio (0.50) is lower than (0.75), with 95% probability, the null hypothesis (one of two possible hypotheses) is rejected and the hypothesis against it (another possible hypothesis) is confirmed. In other words, financial tools influence development of e-banking services.

A summary of other research hypotheses are shown in table 5.

### *Ranking of factors based on Freedman test of variance analysis*

This test is used in order to rank the factors affecting the development of e-banking services in Iran. The decision making principle is as follows:

#### **Decision making principle**

At the 95% confidence level, if the significance level calculated is higher than the error level (5%), the H0 is rejected and the H1 is accepted.

Therefore, at 95% confidence level, since the significance level calculated is lower than the error level, the H0 is rejected the H1 is accepted. It means that at least one pair of average rating of factors that influence e-banking development in Iran is also significantly different. Table 6 shows that the effective factors on e-banking services in Iran is in a descending order.

**Table 2: The results of factor analysis of research based on measures and dimensions.**

Questions	Factor						
	Management infrastructure	Technical infrastructure	Rule infrastructure	Economic infrastructure	Cultural infrastructure	Financial infrastructure	Human resources infrastructure
fan1	-.094	.506	.059	.038	-.014	.117	.031
fan2	-.045	.491	.045	.030	.048	.199	.063
fan3	-.032	.442	.000	.072	-.062	.156	.194
mali1	.104	.473	.160	-.248	-.518	.440	.130
mali2	-.063	.292	.121	-.074	.030	.504	.182
eco1	.020	-.118	-.005	.279	.124	.079	.246
eco2	.038	-.115	.247	.409	.247	.142	.179
eco3	.000	.036	.045	.441	.071	.282	.229
Cal1	-.025	.000	.053	-.010	.318	-.090	.166
Cal2	.003	.030	.037	.001	.414	.045	.113
Cal3	.011	.043	-.007	.015	.389	.008	.265
Rol1	-.023	.151	.338	-.115	-.021	.028	.104
Rol2	.065	-.027	.288	-.049	.045	.079	.171
Rol3	-.040	.039	.314	-.097	.127	.142	.090
man1	.378	.011	.019	.030	.058	.285	.036
man 2	.439	-.035	-.017	.044	-.030	.203	.013
man 3	.406	-.057	.015	-.006	.081	.377	.113
hum1	.135	-.031	.062	-.017	.073	.405	.200
Hum2	.123	.025	.020	.032	-.044	-.043	1.044
Hum3	.251	-.124	-.042	.044	-.159	.212	.694

**Table 3. Binomial test**

	Classification	Statistical population	Observed ratio	Agreed coefficient (supposed ratio of test)	Significance level
Subsidiary	Group 1	<= 3	99	0.75	0.021
	Group 2	> 3	33	0.25	
	Total		132	1.00	

**Table 4: Summary of other research hypotheses**

Test hypothesis	Test results
Financial instruments affect the development of e-banking services.	+
Economic infrastructure has an impact on the development of e-banking services	+
Technical infrastructure has an impact on the development of e-banking services	+
management and policy Infrastructure affect the development of e-banking services.	+
Human infrastructure has an impact. the development of e-banking services	+
Social and cultural infrastructure has an impact on the development of e-banking services.	+
Legal infrastructure has an impact on the development of e-banking services.	+
Factors influencing the development of e-banking services in Iran are not of equal importance.	+

**Table 5. Freedman test of variance analysis for the effective factors on e-banking services**

H0	H1	K2	Significance level	Error level	Test results
the effective factors on e-banking services In Iran is of equal importance	At least one pair of Average rating of factors that influence e-banking development in Iran are also significantly different	107.28	0	0.05	rejected H0

**Table 6: Average rating of factors that influence e-banking development in Iran**

No	Factors	Average rating of factors in descending order
1	Financial factors	4.11
2	economic factors	3.96
3	Technical factors	3.56
4	cultural factors	3.04
5	Management factors	2.55
6	Legal factors	2.48
7	Human factors	2.14

### Recommendations of the study

According to the results obtained the following recommendations are offered:

#### *Recommendation for the variable of the impact of financial instruments on the development of e-banking services*

Since the hypothesis testing of a research shows that the financial instruments influence the e-banking services. Thus it is suggested that by using instruments of e-payment of bank accounts, doing banking affairs by cell phone, controlling bank accounts on line and so on in order to expand e-banking service

#### *Recommendations for the variable of the impact of financial infrastructures on the development of e-banking services*

Since the testing of second research hypothesis shows, the financial influence the e-banking services. Thus it is suggested to bank managers to expand e-banking services by interacting with technical infrastructure devices such as Iran telecommunication Company, to receive technical facilities and required knowledge in this area and take step towards expansion of e-banking services.

#### *Recommendation for the impact variable of policy and management infrastructure for development of e-banking services*

The testing of fifth research hypothesis shows that human infrastructure influence expansion of

e-banking services. Thus, it is suggested to use the expert forces of information and financial technology in employment selections, and the access of human force to information technology and financial forces. Also, managers should be familiar with concepts, application and advantages of e-banking services and training with high quality should be held about information technology and electronic financial services in organization in order to develop e-banking services

#### *Recommendation for the impact of cultural and social infrastructure on the development of e-banking services*

The sixth hypothesis testing of research shows that cultural and social infrastructure influence on the development of e-banking services. Thus, it is suggested that by appropriate creation and propagation, the awareness, reliability, and tendency of people about application and advantages of e-banking services increases. Educational research centers and educational programs about e-banking services should be established for this purpose. Multimedia especially national media like radio, television should try to inform people to create culture.

#### *Recommendation for the relation between customer expectations and customer satisfaction*

The test of seventh hypothesis of the research shows that legal infrastructures influence on the development of e-banking services. Thus, it is suggested that legislators and law enforcement be familiar with intellectual property laws, laws related to computer crimes, encryption and security related laws, laws about financial transactions, the law about Legal recognition of documents digital signatures, the law about preserving Privacy Policy, existence of national centers for secure electronic transactions, existence of centers for dispute resolution and computer claims, supporting law making about electronic financial services and making laws to public access to telecommunication services. They should try to develop e-banking services by required laws and implementing them.



## References

- Afshari, B. (2004). Electronic banking, an inevitable necessity to conform with world standards. *Quarterly Bank*, 17, 20-26.
- Akbari, M. (2004). Investigating the causes of reluctance to buy from Shahrvand E-Shops in Tehran. Master's thesis, Faculty of Management, Tehran University.
- Andrieu, M. (2001). The future of E-Money: An international review of policy and regulatory issues, *The Journal of Future Studies. Strategic Thinking & Policy*. 3(5), 501-522.
- Bagherinejad, J. & Sattari, H. (2006). Giving examples of the Stock Exchange e-readiness assessment for implementing e-government. *Monthly Scholarship*, 60, 16-29.
- Barclay, Michel, J., Hendershott, T., & McCormick, D., T. (2005). Competition among Trading Venues: Information and Trading on Electronic Communication Networks. *Journal of Finance*, 72, 2637-2664.
- Claessens, S. Glaessener, T. & Klingebiel, D. (2001). E-finance in emerging markets: Is leapfrogging possible? the world bank. Financial discussion paper. No 7.
- Collis, J. & Roger, H. (2003). *Business research*. 2nd ed. UK: Palgrave.
- Delbari, M., & Grigorian, S. (2005.) Internet investment: Prospects and challenges. *Monthly Scholarship*, 48, 28-33.
- Hassan Zadeh A. (2003). Electronic financial services: A new approach for the development of the financial sector. Institute for Monetary and Financial.
- Heshmati, H., (2004). Islamic banking on the verge of Electronic Technology. *Quarterly Bank*, 17, 15.
- Mohammadian, A., (2005). Providing a appropriate framework for e-business model. M.Sc. Thesis Tehran University School of Management.
- Handrshat, T. (2006). Electronic transactions in financial markets. (Translated by A. Shahrabadi). *Monthly Scholarship*, 56, 30-33.
- Allahyari Fard, M. (2005). Services, electronic banking and executive needs. Institute for Monetary and Banking.
- Rezaei, S. J. (2000). Identification and evaluation of barriers to e-commerce development in Iran. Master's thesis, School of Management and Islamic Studies, Imam Sadiq University.
- Salahi Memon, M. (2004). Factors affecting bank customers tendency to use a bank ATM. M.Sc. Thesis Tehran University School of Management.
- Sotoudeh, S. M. (2004). Electronic banking: Strategies for success, challenges and threats. *Quarterly Bank*, 14, 89-91.
- Sabbaghi, M.A. (2003). Study the factors affecting the implementation of electronic commerce in Iran. MSc thesis, School of Management.
- Tamizi, A. & Akbari, M. (2004). Evaluation criteria for development of Information and Communication Technology: A case study of Islamic conference member countries. *Knowledge management*, 64, 27-59.
- Zafar Heydari, F. (2004). Development of e-readiness assessment model for using information and communication technologies (ITC) in the industrial and economic sectors. MSc thesis, Faculty of Management, Tehran University